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TRAINING PROGRAM FOR THE ANALYSIS OF FORENSIC CASEWORK USING PCR-BASED STR FLUORESCENCE IMAGING ANALYSIS AT THE POWERPLEX® 16 BIO LOCI	Issue No. 2
	Effective Date: 1-August-2005
<p>7 DNA QUANTITATION – ALUQUANT® HUMAN QUANTITATION METHOD</p> <p>7.1 GOALS:</p> <p>7.1.1 To develop an understanding and working knowledge of the AluQuant® human quantitation method, including limitations and interpretation of results and proper documentation.</p> <p>7.1.2 To become familiar with the controls used with the AluQuant® Human Quantitation System.</p> <p>7.1.3 To develop an understanding and working knowledge of the luciferase reaction used in the AluQuant® System.</p> <p>7.1.4 To learn the theory of the hybridization method used in the AluQuant® human quantitation method.</p> <p>7.1.5 To learn about the probes used for the AluQuant® human quantitation method.</p> <p>7.2 TASKS - ALUQUANT® HUMAN QUANTITATION METHOD:</p> <p>7.2.1 Read the <u>Commonwealth of Virginia Department of Forensic Science Forensic Biology Section Procedure Manual, Section IV - BioMek® 2000 Automation Workstation Procedure Manual</u>.</p> <p>7.2.2 Quantitate the DNA from the 28 blood stains, 28 unmixed biological stains, 20 mixed biological stains, and validation sample sets addressed in Section 4, DNA Isolation. Note: In accordance with the instruction provided in Section 4 of this manual, the blood stain, unmixed biological stain, mixed biological stain, and the validation study sets will be isolated on the BioMek® 2000 Automation Workstation at different times.</p> <p>7.2.3 Observe the Project Coordinator run the blood stains and unmixed biological stains through the entire AluQuant® quantitation process, deck setup, and initiation of the BioWorks™ and AluQuant® Calculator programs.</p> <p>7.2.4 Interpret the results from the AluQuant® Calculator program.</p> <p>7.2.5 Look at the results of degraded samples using the AluQuant® method in order to become familiar with the appearance of human DNA and bacterial DNA. <u>Note:</u> These previously isolated samples will be provided to the training coordinator by either the Forensic Biology Section Chief or the Forensic Molecular Biologist.</p> <p>7.2.6 Compare the AluQuant® results to the yield gel results obtained in Chapter 5 for the 28 blood stains isolated in Chapter 4.</p> <p>7.2.7 Read applicable literature and become familiar with the glossary terms. Refer to Appendices A, B, and C.</p> <p>7.2.8 Continue on to Chapter 8, NORMALIZATION WIZARD AND AMPLIFICATION PROCESSES.</p>	

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<p>7.3 TRAINING EVALUATION:</p> <p>7.3.1 Knowledge</p> <p>7.3.1.1 Review of notes and worksheets in training notebook by training coordinator.</p> <p>7.3.1.2 Mini-mock trials/oral and practical examinations.</p> <p>7.3.2 Skills</p> <p>7.3.2.1 The trainee should demonstrate an unquestionably sound technique for quantitating DNA and accurately interpreting the associated results. This will be monitored by review of the documentation in the training notebook and continual observation by the training coordinator.</p> <p>7.3.3 Completion of the trainee checklist by the training coordinator.</p> <p>STUDY QUESTIONS:</p> <ol style="list-style-type: none"> 1. Why would an analyst run the AluQuant[®] human quantitation method versus running a yield gel? 2. What calibration standards are used for the AluQuant[®] human quantitation method? 3. What probes are used in the AluQuant[®] human quantitation method and why? 4. Explain how the AluQuant[®] Human Quantitation System works. 5. Can the AluQuant[®] Human Quantitation System quantitate highly degraded DNA samples? Why or why not? 	

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CHECKLIST FOR DNA QUANTITATION – ALUQUANT[®] HUMAN QUANTITATION METHOD	
Name of Trainee: _____	
<p>1. Trainee has observed the Project Coordinator run the blood stains and mixed biological stains through the entire AluQuant[®] Human Quantitation process and deck setup.</p> <p>Date:_____ Project Coordinator:_____</p> <p>Comments:_____</p>	
<p>2. Trainee has quantitated the DNA from the following samples using the AluQuant[®] Human Quantitation System:</p> <ul style="list-style-type: none"> • 28 blood stains • 28 unmixed biological stains, to include semen, vaginal fluid, blood, and saliva. • 20 mixed biological stains, to include semen, vaginal fluid, blood, and saliva. • 68 validation study samples <p>Date:_____ Project Coordinator:_____</p> <p>Comments:_____</p>	
<p>3. Trainee has successfully interpreted the results developed using the AluQuant[®] Human Quantitation System.</p> <p>Date:_____ Training Coordinator:_____</p> <p>Comments:_____</p>	
<p>4. Trainee has successfully and accurately completed all appropriate paperwork associated with the AluQuant[®] Human Quantitation System.</p> <p>Date:_____ Training Coordinator:_____</p> <p>Comments:_____</p>	
<p>5. Trainee has evaluated the appearance of degraded DNA using the AluQuant[®] Human Quantitation System.</p> <p>Date:_____ Training Coordinator:_____</p> <p>Comments:_____</p>	

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<div> <div>6. Trainee has developed a basic understanding of the advantages and limitations associated with the AluQuant[®] human quantitation method and how these results compare when the same samples were run on a yield gel.</div> <div> Date: _____ Training Coordinator: _____ </div> <div> Comments: _____ </div> </div> <div> <div>7. Notebook is organized and complete.</div> <div> Date: _____ Training Coordinator: _____ </div> <div> Comments: _____ </div> </div> <div> <div>8. Trainee has participated in mini-mock trials and/or question and answer sessions.</div> <div> Date: _____ Training Coordinator: _____ </div> <div> Comments: _____ </div> </div>	
<div>◆END</div>	